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Traditional plant based Therapy among Rural communities of some villages of Pilibhit district of Rohilkhand Division, India

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Abstract

The traditional Knowledge regarding utilization of ethnomedicinal plants for treating various diseases and ailments was collected by direct interviewing elderly learned and experienced knowledgeable resource persons who have traditional Knowledge about these ethnomedicinal plants in some villages of Pilibhit district of Rohilkhand Division. A total of 50 plant species in 50 genera and 31 families were used traditionally with various plant parts and their combination for the treatment of various ailments and diseases in the studied area. The highest number of ethnomedicinal plants was recorded in Apocynaceae and Fabaceae, each of which found to have 04 plant species. Among all the plant habit, tree (21 plant species) was found to be the most used plant habit. Methods of preparation fall into eight categories viz. Ash, Decoction, Extract, Juice, Oil, Paste, Powder, and some time various fresh plant parts were also used directly.. The flora of Pilibhit district of Rohilkhand Division has immense pharmaceutical and commercial potential.

Keywords: Ethnomedicinal plants, Human ailments and diseases, Rohilkhand Division, Traditional Knowledge.

Introduction

Ethnobotany is the relationship between plants and people[1]. Since prehistoric period medicinal plants have been used virtually in all cultures as a source of medicine. The main traditional medicinal system includes Ayurveda, Sidha and Unani. The Rigveda dating between 3500 B.C. to 1800 B.C., is the earliest recorded information on medicinal plants[2]. India is one of the 17 mega biodiversity countries in the world. It has 45000 plant species, out of which 15000- 20000 plants have medicinal values[3].

According to the world Health Organization (WHO) about 65-80% of the world's population in developing countries depends essentially on plants for their primary healthcare due to poverty and lack of access to modern medicine[4]. Traditional knowledge of medicinal plants and their use by indigenous healers and drug development in the present are not only useful for conservation of cultural tradition and biodiversity but also for community health care and drug development in the local people .The indigenous knowledge on medicinal plants appears when humans started and learned when humans started and learned how to use the traditional knowledge on medicinal plants[5].

It has been estimated that folk healers in India use approximately about 2500 species of medicinal plants which few more than 100 species serve as regular sources of medicine[6-8]. Ethnomedicine has attracted researchers all over the world, received and renewed attention in India in recent past because of its local acceptability. Plant extracts used in ethno medical treatments is enjoying great popularity, however, lacks scientific validation[8,9]. Traditional medicine still remains the main choice for a large majority of people for treating various diseases and ailments. Management in various forms of diseases like diabetes, cardiovascular disorders, hepato-protective, antibacterial, antifungal and wound healing etc. are made. In India, traditional medicines find its use on par with Western medicine[10].

Pilibhit is one of the plant biodiversity rich district of Rohilkhand region. The region is endowed with rich biodiversity of species. The main objective of this study was to assess the diversity of ethnomedicinal plants used by rural communities and document the traditional medical practices followed in treating diseases and ailments. Therefore, documenting indigenous knowledge through ethnobotanical studies is important for the conservation of biological resources and their sustainable utilization.

Materials and Methods

Study area: The district of Pilibhit is the north-eastern most district of Rohilkhand division which is situated in the sub Himalayan belt on the boundary of Nepal. It lies between the parallels of 28°6' and 28°53' north latitude and the meridians of 79°57' and 80°27' east longitude. On the north are the district Udhamsingh Nagar and the territory of Nepal, on the south lies the Shahjahanpur district, on the east the district is flanked for a short distance by district Kheri and for the remaining distance by the Shahjahanpur district and on the west the district of Bareilly. According to the central statistical organization the District Pilibhit had an area of 3,504 sq. km. on July 1, 1971,

occupying 49th position in the state. Major part of Pilibhit District is covered by dense forest. Total 78478 hectare is forest.

Methods of informants and data collection: Villages (Navi Nagar, Naugnmya, Benipur, Bisalpur and Manpur) of Pilibhit district of Rohilkhand were regularly visited from July 2014 to June 2015. Following the method of Jain and Goel[17], the information regarding the usage of medicinal plants available in the local area for treating various ailments and diseases, was collected by directly interviewing elderly learned and experienced knowledgeable resource persons who have traditional Knowledge about these medicinal plants in the remote villages of surveyed districts. Questionnaire surveys, participatory observations and field visits were planned to elicit information on the uses of various plants. The plant material was collected and carefully handled for identification by authenticated source. Making herbaria preserved most of the plant materials and all the specimen vouchers were carefully numbered and deposited. The ethnomedicinal value of each plant was enumerated in the following pattern: Botanical name/ Family, Local Name, Parts used and Mode of administration. The identification of plants was done using the following references: i. Forest Flora for Pilibhit, Oudh, Gorakhpur and Bundelkhand by P.C. Kanjilal. ii. Flora of British India by Hooker. iii. Silviculture of Indian trees by Troupe. iv. Indian medicinal plants by Kirtikar and Basu[12].

Results and Discussion

The results of the study are presented in Table 1. The plants are arranged in alphabetical order. For each species botanical name, family, local name, parts used, mode of administration and ailments treated are provided. The results of present study exhibit that inhabitants of villages in Pilibhit District of Rohilkhand Division used a number of plants species as ethnomedicinal plants for the treatment of various ailments and diseases. A total of 50 plant species in 50 genera and 31 families were used traditionally with various plant parts and their combination for the treatment of various ailments and diseases in the studied area.

The rural elderly learned and knowledgeable resource persons were using these plants to treat number of ailments and diseases like abdominal worms, asthma, body ache, body swellings, boils, bronchitis, chickenpox, childbirth, cholera, cough and cold, conjunctivitis, constipation, cut, diabetes, diarrhoea, dysentery, ear infection, earache, eye complaints, , fever, headache, heart problems, heat burns, indigestion, itching, jaundice, leucorrhoea, liver problems, loose teeth, malarial fever, menstrual problems ,migraine, nasal bleeding, painful eyes, piles, pyorrhea, renal stone, ringworm, scabies, skin infection, stomach disorder, stomachache, swelling, toothache, urinary disorder, weakness and wounds *etc*.

The different parts of these ethnomedicinal plants were used as medicine by the local rural elderly learned and knowledgeable resource persons for the treatment of different ailments and diseases. Bark, Bulb, Flower, Fruit, Latex, Leaves, Root, Stem, Tender shoot, Twig, and some time they used whole plant also. Methods of using these plants vary according to the nature of ailments and diseases. The methods of preparation fall into eight categories *viz.* Ash, Decoction, Extract, Juice, Oil, Paste, Powder, and some time various fresh plant parts were also used directly. The rural elderly learned and knowledgeable resource persons were used some common house hold products *viz*., alum, black pepper, camphor, honey, jaggery, lemon, milk, rice, sugar candy in order to prepare ethnomedicinal formulations.

Table-1
Plants with local name, habit, formulations and parts used in medicine by the traditional herbal healers and rural people of Some Villages of Pilibhit District Rohilkhand region, India

Botanical name ; family ;local name; habit	Ailments	Mode of administered
Bn: *Abelmoschus esculentus* (Linn.) Moench. F:Malvaceae Ln: Bhindi H: An erect herb	Cough Bronchitis Asthma	►The small pieces of fresh fruits are boiled in water to obtain mucilaginous decoction. The decoction so obtained is given for the treatment of cough, bronchitis and asthma.
Bn: *Acacia nilotica* Linn. F:Fabaceae Ln: Babool H: An tree	Loose teeth Pyorrhea	►The fresh bark is chewed 02 –03 times in a day to strengthen loose teeth. ►The fresh bark is also chewed to cure mouth ulcers and pyorrhea.
Bn: *Achyranthes aspera* Linn. F:Amaranthaceae Ln: Chirchira H: An erect herb	Bronchitis Asthma	►The whole plant is burnt with fruit of *Datura alba*. The ash so obtained is taken with pure honey to cure bronchitis and asthma.

Botanical name ; family ;local name; habit	**Ailments**	**Mode of administered**
Bn: *Aegle marmelos* (L.) Correa ex Roxb. F:Rutaceae Ln: Bel H: An tree	Fever	►The leaf decoction is given 02- 03 times in a day for seven days in fever.
Bn: *Allium cepa* Linn. F:Liliaceae Ln: Pyaaz H: An herb	Itching	►The paste is prepared from bulb and mixed with *Curcuma* paste and this paste is applied 02- 03 times in a day at skin suffering from itching.
Bn: *Aloe barbadensis* Mill. F:Liliaceae Ln: Gwarpatha H: An herb	Ringworm	►The juice of leaf is applied on skin affected from ringworm for three to four days.
Bn: *Argemone mexicana* Linn. F:Papaveraceae Ln: Pili katili H: Prickly herb	Body ache Cold and Cough	►The seed paste is applied externally to treat body ache. ►The stem juice in given orally to cure cold and cough.
Bn: *Asparagus racemosus* Willd. F:Liliaceae Ln: Satavari H: An scandent or scrambling shrub or under shrub or climbing shrub	Weakness	►The root extract is mixed with milk and given as a tonic in weakness. ►The powder of dried root is also given to treat general weakness.
Bn: *Azadirachta indica* A. Juss. F:Meliaceae Ln: Neem H: An tree	Skin diseases Stomach disorder Toothache Chickenpox	►The paste of leaf is applied once in a day to cure several unknown skin diseases. ►The young leaves are ground to prepare a paste after that small tablets are made from this paste. One tablet is given once in a day to treat stomach disorder. ►The fresh tender twig chewed as 'tooth stick' for relief in toothache. ►The decoction or infusion of leaves is used in bath to cure several skin infections including chickenpox.
Bn: *Bambusa arundincea* (Retz.) Willd. F:Poaceae Ln: Bans H: An woody grass	Weakness	►The tender shoot cut in to slices and made a recipe with onion. This recipe is taken to get relief from weakness after fever.
Bn: *Bauhinia purpurea* Linn. F:Fabaceae Ln: Kachnar H: An tree	Boils	►The leaf paste is cooked with pure cow butter and applied on boils to suppress.
Bn: *Bombax cieba* Linn. F:Bombacaceae Ln: Sembal H: An tree	Dysentery Constipation	►The bark decoction is given in dysentery. ►The root powder is taken with powder of crystallized sugar for the treatment of constipation.
Bn: *Calendula officinalis* Linn. F:*Asteraceae.* Ln: Genda H: An herbaceous	Conjunctivitis and Painful eyes Eyes redness	►The aerial parts of the plants are dried in shade, after drying powder is prepared from dried plant. The powder so obtained is mixed water and eyes are washed thrice a day for the treatment of conjunctivitis and painful eyes. ►The flower juice is also dropped in the eyes suffering from redness.

Botanical name ; family ;local name; habit	**Ailments**	**Mode of administered**
Bn: *Calotropis procera* (Ait.) R.Br. F:Asclepiadaceae Ln: Aak H: An shrub or under shrub	Bronchitis and Asthma	►The dried flower powder is given with honey to cure bronchitis and asthma.
Bn: *Cannabis sativa* Linn. F:Cannabinaceae Ln: Bhang H: An annual herbaceous	Piles Wounds	►The leaf paste with little quantity of milk is applied on piles. ►The fresh leaf paste is also applied on wounds.
Bn: *Carica papaya* Linn. F:Caricaceae Ln: Papita H: An small tree	Toothache	►The latex of raw fruit (one to two gr.) is applied on gums for the treatment of toothache.
Bn: *Carissa carandas* Linn. F:Apocynaceae Ln: Karonda H: An shrub	Bronchitis and Asthma	►The powder of dried fruit and black pepper is given with pure honey to cure bronchitis and asthma.
Bn: *Cassia fistula* Linn. F:Fabaceae Ln: Amaltas H: An tree	Urinary disorder Constipation	►The leaf decoction is given in urinary disorder. ►The seed powder with common salt is given in constipation.
Bn: *Catharanthus roseus* (L.) G. Don. F:Apocynaceae Ln: Sadabahar H: An evergreen sub shrub or herbaceous	Nasal bleeding	►Two or three of fresh and green leaves is pureed in the nostril to cure nasal bleeding.
Bn: *Citrus limon* (Linn.) Burm.f. F:Rutaceae Ln: Neebu H: An shrub or small tree	Cholera	►Two or three fruits are given in a day with is mixed with for the treatment of cholera.
Bn: *Cleome gynandra* L. F:Capparaceae Ln: Hurhura H: An erect herb	Malarial fever	►The seed are soaked in 250 ml. water overnight and given thrice in a day to treat malarial fever.
Bn: *Clerodendrum viscosum* Vent. F:Verbenaceae Ln: Bhatar H: An large shrubs or small trees	Toothache Fever	►A piece of stem is used as a tooth stick in toothache. ►The decoction of leaf is given to the women suffering from fever after childbirth.
Bn: *Curcuma longa* Linn. F:*Zingiberaceae* Ln: Haldi H: An perennial rhizomatous herb	Cold and Cough Swelling	►The cow milk is boiled with a pinch of root powder of *Curcuma longa* (Haldi) and *Trachyspermum ammi* (Ajwain). The milk so obtained is mixed with honey for immediate relief in cold and cough. ►A paste is prepared by mixing powder of *Curcuma longa* (Haldi) ,*Trachyspermum ammi* (Ajwain) ,salt and lime. The paste so prepared is applied externally for the treatment of swelling.
Bn: *Dalbergia sissoo* Roxb ex DC. F:Fabaceae Ln: Sheesham H: An tree	Leucorrhoea	►The powder of dried leaves is mixed with crystallized sugar and is given for the treatment of leucorrhoea.

Botanical name ; family ;local name; habit	**Ailments**	**Mode of administered**
Bn: *Eucalyptus globules* Labill. F:*Myrtaceae* Ln: Liptis H: An tree	Fever	►The leaf decoction is mixed with a pinch of powder of black pepper and is given for the treatment of fever.
Bn: *Euphorbia hirta* L. F:Euphorbiaceae Ln: Dudhi H: An herb	Dysentery	►The leaves are chewed for the treatment of dysentery.
Bn: *Ficus religiosa* Linn. F:Moraceae Ln: Peepal H: An tree	Asthma and Cough Dysentery Diabetes	►The leaves are dried in sunshine and ground to make powder. About 05 g. of this powder is mixed with pure honey and given every morning for relief in asthma and cough. ►Equal part of tender leaves and sugarcane are chewed slowly to relieve in dysentery. ►The latex obtained from the aerial parts of the plant is mixed with pure honey and is used orally to control diabetes.
Bn: *Gossypium arboreum* Linn. F:Malvaceae Ln: Kapas H: An large shrubs or small trees	Earache Menstrual problems	►The leaf juice is poured drop by drop in ear to relieve in earache. ►The root powder is given in menstrual problems.
Bn: *Hibiscus rosa-sinensis* Linn. F:Malvaceae Ln: Gulhar H: An evergreen shrub	Itching	►The floral parts are applied once daily on affected area suffering from itching till the complete cures.
Bn: Kalanchoe pinnata (Lam.) Pers. F:*Crassulaceae* Ln: Ajuba H: An succulent perennial medicinal herb	Boils	►The cow ghee is wrapped on the both surfaces of heat warm leaves. Boils are covered by this leaf to suppress.
Bn: *Lantana camara* Roxb. F:Verbenaceae Ln: Raimunia H: An shrub	Wound and Cut	►The leaf paste is applied on wound and cut for seven days to heal.
Bn: *Lawsonia inermis* Linn. F:Lytharaceae Ln: Menhdi H: An shrub	Scabies Headache	► A paste obtained from leaves is applied on the areas suffering from scabies. ►Flower is ground with Vinegar and water to make paste. The paste so obtained is applied on forehead to get relieve from headache.
Bn: *Mangifera indica* Linn. F:*Anacardiaceae* Ln: Aam H: An tree	Indigestion Diarrhoea and Dysentery	►The juice of ripe fruit is given with small amount of powder of dried *Zinger* in morning for the treatment of indigestion. ►One teaspoon powder of dried seed is taken with water twice in a day for treating diarrhoea and dysentery.
Bn: *Morus alba* Linn, F:Moraceae Ln: Shetoot H: An small tree	Cholera	►The leaf decoction is given in cholera.

Botanical name ; family ;local name; habit	**Ailments**	**Mode of administered**
Bn: *Nerium indicum* Mill. F:Apocynaceae Ln: Red Kaner H: An small tree	Migraine	►The juice of fresh leaf is mixed with common salt. The aroma of this mixture is breathed in for immediately relief in migraine.
Bn: *Ocimum sanctum* Linn. F:*Lamiaceae* Ln: Tulsi H: An shrub	Liver problems Fever, Cough and Cold	►About 10-12 leaves are washed in the warm water and given every morning for relief in liver problems. ►The juice of leaves is given with black pepper to get relief in fever, cough and cold.
Bn: *Parthenium hysterophorus* (L.) F:Asteraceae Ln: Gajar ghass H: An annual herb	Dysentery Wounds	►The extract of root is used for treatment of dysentery. ►The leaf paste is applied on wounds to heal.
Bn: *Emblica officinalis* Gaertn.. F:*Euphorbiaceae* Ln: Aonla H: An tree	Constipation Eye complaints	►Fruit are dried in sunshine and ground to obtained powder. One teaspoon of this powder is given 02 or 03 time in a day with one glass of water for relief in constipation. ►The juice is obtained from the fresh fruit and mixed one teaspoonful of pure honey. This honey mixed fruit juice is given orally to improved eyesight and also used as an eye tonic and other eye complaints.
Bn: *Psidium guajava* Linn. F:*Myrtaceae* Ln: Amrood H: An small tree	Cold, Cough and Bronchitis	►A paste is obtained from baked green fresh fruit. This paste is mixed with a teaspoonful pure honey and given for treating cold, cough and bronchitis.
Bn: *Punica granatum* Linn. F:*Punicaceae* Ln: Anar H: An small tree	Abdominal worms Diarrhoea and Dysentery	►Seed are dried in sunshine and ground to make powder. About ¼ teaspoon of this powder is given with water twice time in a day for killing abdominal worms of children. ►Fruit is dried in sunshine and ground to make powder. The powder so obtained is mixed with equal quantity of sugar. About ¼ to ½ teaspoons of this powder is given with water to children and adult respectively for diarrhoea and dysentery.
Bn: *Rosa indica* L. F:Rosacae Ln: Gulab H: An shrub	Constipation	►The powder (one teaspoonful) of dried leaves is given with 300 ml. water for relief in constipation.
Bn: *Raphanus sativus* Linn. F:*Brassicaceae* Ln: Mooli H: An herb	Ear infection	►The juice is obtained from underground part of plant and cooked with sesame oil until all the juice is mixed with oil. After cooling this oil is used as ear drops for the treatment of ear infection.
Bn: *Ricinus communis* Linn. F:*Euphorbiaceae* Ln: Arundi H: An small tree	Constipation Stomachache Jaundice	►Little quantity of fruit powder is given in constipation. ►The fresh leaves are fried in cow Ghee for very short period then these leaves are wrapped over abdomen of person suffering from stomachache. ►The paste of tender leaf is mixed with curd and is given for treatment of jaundice.

Botanical name ; family ;local name; habit	**Ailments**	**Mode of administered**
Bn: *Solanum nigrum* Linn. F:Solanaceae Ln: Makoi H: An herb	Body swellings	►The powder of dried leaves is given in body swellings.
Bn: *Sesamum indicum* Linn. F:*Pedaliaceae* Ln: Til H: An erect, glandular-pubescent, annual Herb	Scabies	►The sesame oil is mixed with camphor and applied on scabies.
Bn: *Syzygium cumini* (L.) Skeels. F:Myrtaceae Ln: Jamun H: An tree	Indigestion Renal stone	►About 10 to 15 ml. fruit juice of blackberry is taken to treat indigestion. ►About 10 ml. fruit juice of blackberry is mixed with salt and this juice taken twice or thrice in a day to treat renal stone.
Bn: *Terminalia arjuna* (Roxb.) W.and A. F:*Combretaceae* Ln: Arjuna H: An tree	Cough	►The bark is dried in sunshine and ground to make powder. One teaspoonful of this powder is taken every morning for relief in cough.
Bn: *Thevetia neriifolia* Juss. F:Apocynaceae Ln: Pili kaner H: An small tree	Heart problems Skin infection	►About 100- 200 mg. root powder is taken after meal for the treatment of various heart problems. ►The bark is ground to make paste. The paste so obtained is applied externally on skin affected from infection.
Bn: *Tectona grandis* L.f. F:Verbenaceae Ln: Sagon H: An tree	Cough	►A piece of bark is kept in mouth for cough relief.
Bn: *Ziziphus mauritiana* Lam. F:Rhamnaceae Ln: Ber H: An large shrubs or small trees	Heat burns Conjunctivitis	►A paste is obtained from shade dried leaves and applied externally on the area suffering from heat burns. ►The seed powder is given in conjunctivitis.

The highest number of ethnomedicinal plants was recorded in families Apocynaceae and Fabaceae each of which found to have 04 plant species. Euphorbiaceae, Liliaceae, Malvaceae, Myrtaceae, Verbenaceae were the families, each of which found to have 03 plant species. Two number of plant species were reported in 03 families namely Asteraceae, Moraceae, Rutaceae. Rest of the reported 21 families contributes only one species each (Table-2 and Figure-2).

Among all the plant habit, tree (21 plant species) was found to be the most used plant habit followed by herb (15 plant species), shrub (06 plant species) and woody grass (01 plant species) while 07 species exhibited diverse habit in present as presented in Table-3 and Figure-3.

Ethnomedicinal plants and their traditional formulations have always been a part of social life of rural community, which have proved to be very useful in tackling various health related issues along with their key role in curing different ailments and diseases. The present study has revealed significant information on various ethnomedicinal plants used by inhabitants of villages in Pilibhit District of Rohilkhand Division. The studies carried out by Saxena and Tripathi[13,14] Bhalla *et al.*[15] Khanna *et al.*[16], Dubey *et al.*[17], Nigam and Kumar[18], Thakur *et al.*[19], Verma *et al*[20,21]. in other part of country have also confirmed that local plant species have been primary source for the treatment of different ailments and diseases.

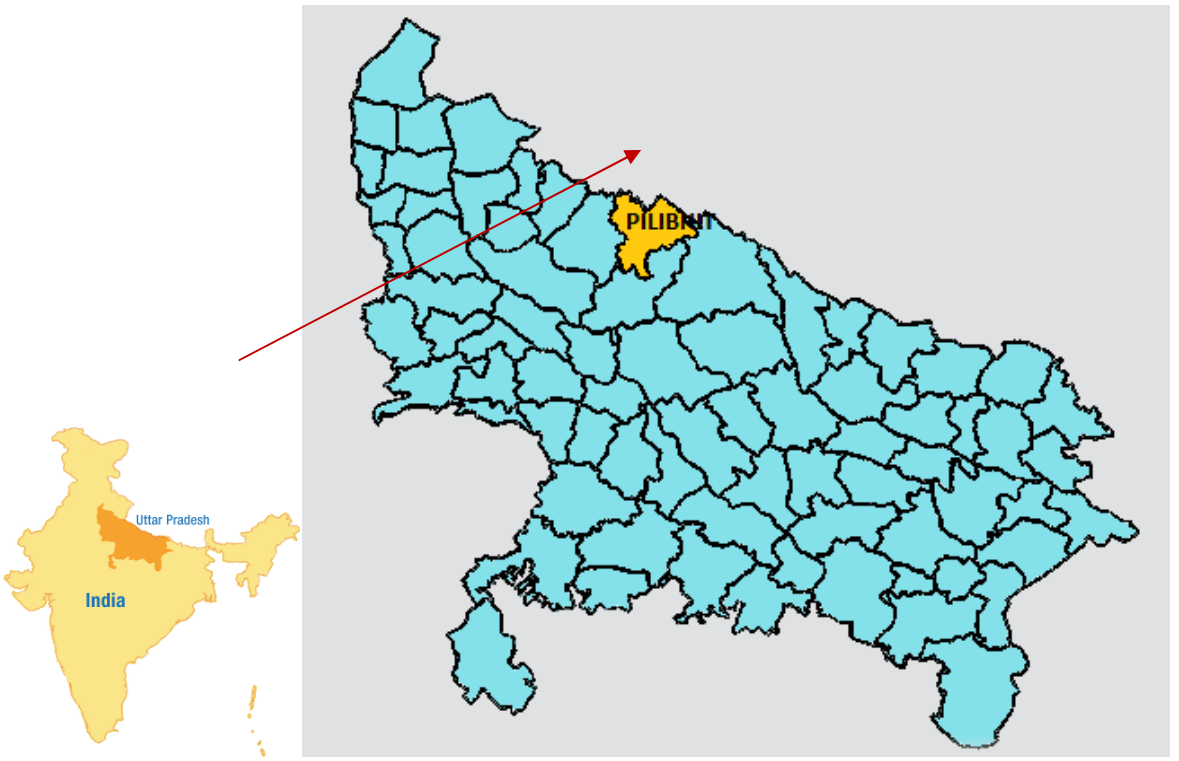
Ayurveda is one of the most ancient medical traditions practiced in India, Sri Lanka and other South Asian countries and its literature describes over 200 herbs, minerals and fats to maintain and enhance the health and beauty of the skin[12]. The plants reported in the present study are also used in Ayurvedic system of medicine for treatment of ailments and diseases (Kirtikar and Basu, 1999).

Table-2
Representation of the families and plants studied at study site

S.N.	Name of Family	Botanical Name	No. of plants
1.	Amaranthaceae	*Achyranthes aspera* Linn.	01
2.	Anacardiaceae	*Mangifera indica* Linn.	01
3.	Apocynaceae	*Carissa carandas* Linn. *Catharanthus roseus* (L.) G. Don. *Nerium indicum* Mill. *Thevetia neriifolia* Juss.	04
4.	Asclepiadaceae	*Calotropis procera* (Ait.) R.Br.	01
5.	Asteraceae	*Parthenium hysterophorus* (L.) *Calendula officinalis* Linn..	02
6.	Bombacaceae	*Bombax cieba* Linn.	01
7.	Brassicaceae	*Raphanus sativus* Linn.	01
8.	Cannabinaceae	*Cannabis sativa* Linn.	01
9.	Capparidaaceae	*Cleome gynandra* L.	01
10.	Caricaceae	*Carica papaya* Linn.	01
11.	Combretaceae	*Terminalia arjuna* (Roxb.) W. and A.	01
12.	Crassulaceae	Kalanchoe pinnata (Lam.) Pers.	01
13.	Euphorbiaceae	*Euphorbia hirta* L. *Emblica officinalis* Gaertn.. *Ricinus communis* Linn.	03
14.	Fabaceae	*Acacia nilotica* Linn. *Bauhinia purpurea* Linn. *Cassia fistula* Linn. *Dalbergia sissoo* Roxb ex DC.	04
15.	Lamiaceae	*Ocimum sanctum* Linn.	01
16.	Liliaceae	*Allium cepa* Linn. *Aloe barbadensis* Mill. *Asparagus racemosus* Willd.	03
17.	Lytharaceae	*Lawsonia inermis* Linn.	01
18.	Malvaceae	*Abelmoschus esculentus* (Linn.) Moench. *Gossypium arboreum* Linn. *Hibiscus rosa-sinensis* Linn.	03
19.	Meliaceae	*Azadirachta indica* A. Juss.	01
20.	Moraceae	*Ficus religiosa* Linn. *Morus alba* Linn,	02
21.	Myrtaceae	*Syzygium cumini* (L.) Skeels. *Psidium guajava* Linn. *Eucalyptus globules* Labill.	03
22.	Papaveraceae	*Argemone mexicana* Linn.	01
23.	Pedaliaceae	*Sesamum indicum* Linn.	01
24.	Poaceae	*Bambusa arundincea* (Retz.) Willd.	01
25.	Punicaceae	*Punica granatum* Linn.	01
26.	Rhamnaceae	*Ziziphus mauritiana* Lam.	01
27.	Rosacae	*Rosa indica* L.	01
28.	Rutaceae	*Aegle marmelos* (L.) Correa ex Roxb. *Citrus limon* (Linn.) Burm.f.	02
29.	Solanaceae	*Solanum nigrum* Linn.	01
30.	Verbenaceae	*Clerodendrum viscosum* Vent. *Lantana camara* Roxb. *Tectona grandis* L.f.	03
31.	Zingiberaceae	*Curcuma longa* Linn.	01

Table-3
Habit of plant species used for treatment of various diseases

S.N.	Habit	Botanical Name	No. of plants
1.	Herb	*Abelmoschus esculentus* (Linn.) Moench. *Achyranthes aspera* Linn. *Allium cepa* Linn. *Aloe barbadensis* Mill. *Argemone mexicana* Linn. *Calendula officinalis* Linn. *Cannabis sativa* Linn. *Cleome gynandra* L. *Curcuma longa* Linn. *Euphorbia hirta* L. Kalanchoe pinnata (Lam.) Pers. *Parthenium hysterophorus* (L.) *Raphanus sativus* Linn. *Solanum nigrum* Linn. *Sesamum indicum* Linn.	15
2.	Shrub	*Carissa carandas* Linn. *Hibiscus rosa-sinensis* Linn. *Lantana camara* Roxb. *Lawsonia inermis* Linn. *Ocimum sanctum* Linn. *Rosa indica* L	06
3.	Tree	*Acacia nilotica* Linn. *Aegle marmelos* (L.) Correa ex Roxb. *Azadirachta indica* A. Juss. *Bauhinia purpurea* Linn. *Bombax cieba* Linn. *Cassia fistula* Linn. *Dalbergia sissoo* Roxb ex DC. *Eucalyptus globules* Labill. *Ficus religiosa* Linn. *Mangifera indica* Linn. *Emblica officinalis* Gaertn.. *Syzygium cumini* (L.) Skeels. *Terminalia arjuna* (Roxb.) W. and A. *Tectona grandis* L.f.	14
4.	Tree small	*Carica papaya* Linn. *Morus alba* Linn, *Nerium indicum* Mill. *Psidium guajava* Linn. *Punica granatum* Linn. *Ricinus communis* Linn. *Thevetia neriifolia* Juss.	07
5.	Shrubs or small tree	*Clerodendrum viscosum* Vent. *Gossypium arboreum* Linn. *Ziziphus mauritiana* Lam.	03
6.	Shrub or under shrub	*Asparagus racemosus* Willd. *Calotropis procera* (Ait.) R.Br.	02
7.	Shrub or herb	*Catharanthus roseus* (L.) G. Don.	01
8.	Shrub or small tree	*Citrus limon* (Linn.) Burm.f.	01
9.	Woody grass	*Bambusa arundincea* (Retz.) Willd.	01



Study area

Figure-1
Map showing study area of Pilibhit District of Rohilkhand Division (U.P).

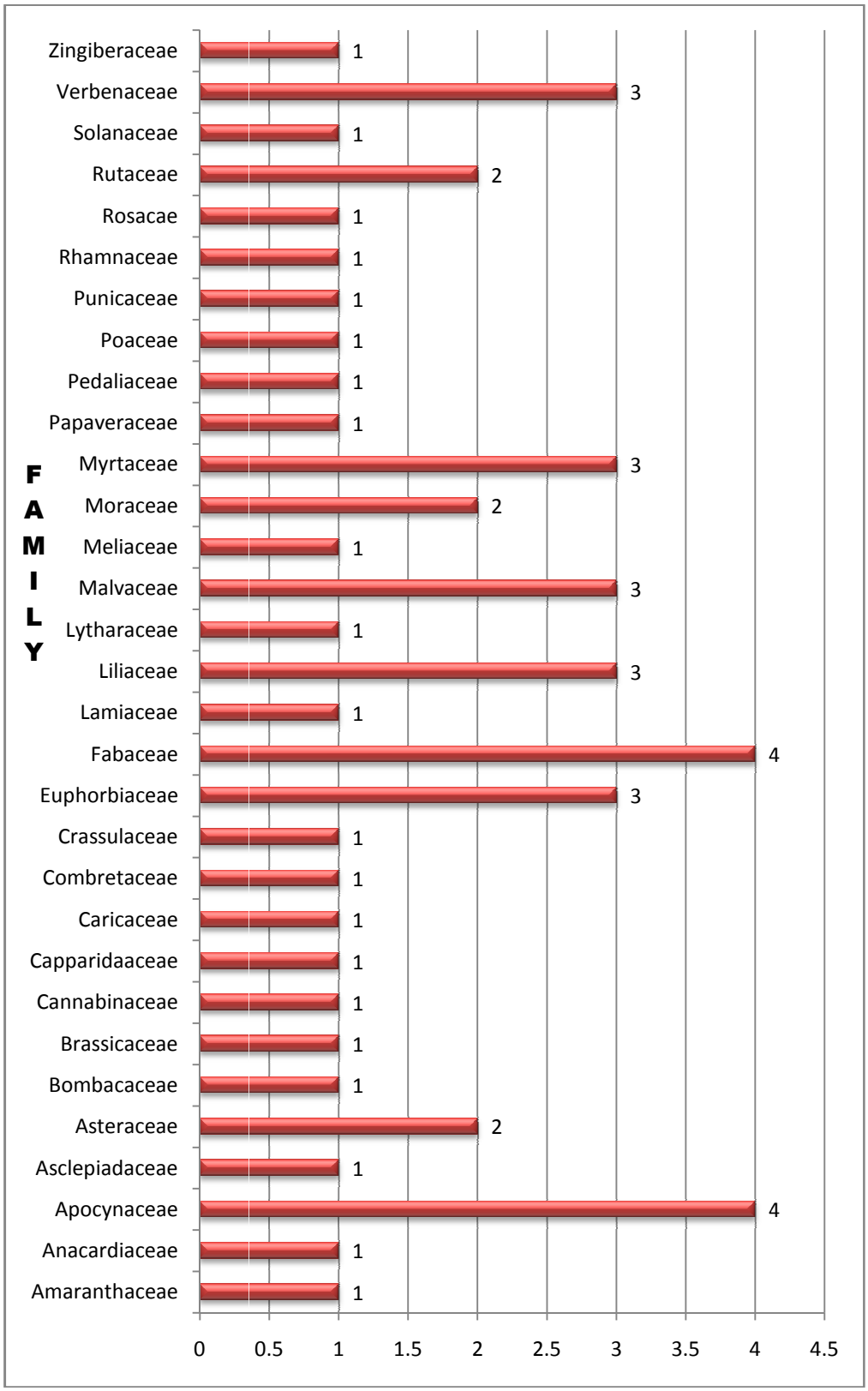


Figure-2
Representation of the families and plants studied at study site

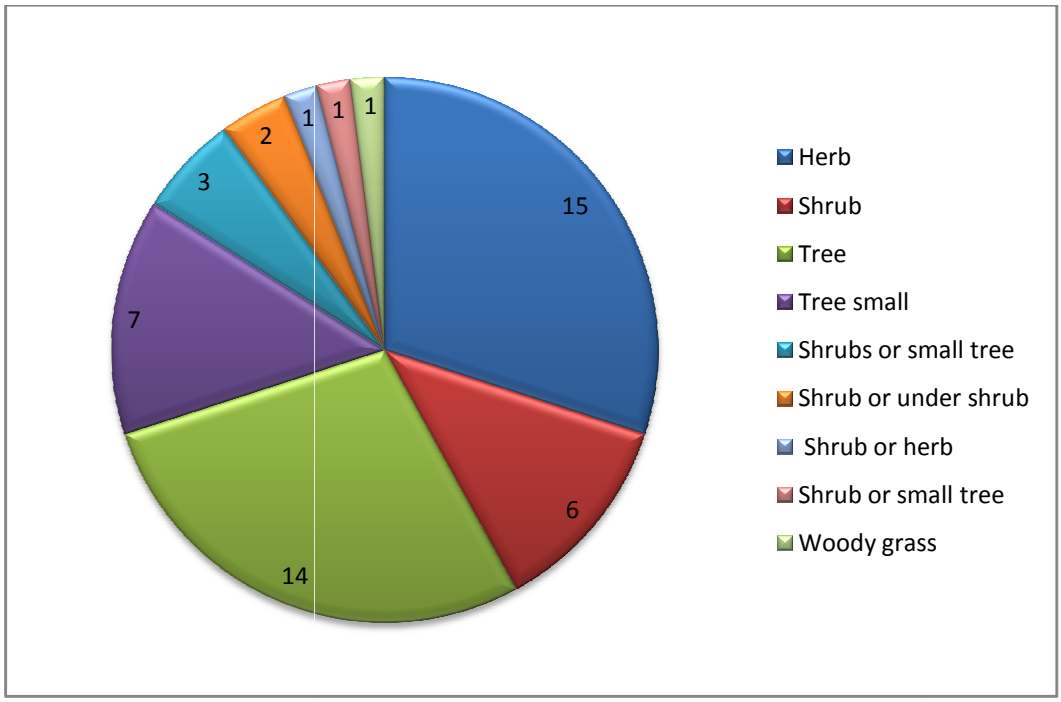


Figure-3
Habit of plant species used for treatment of various diseases.

Ethnobotanical research can provide a wealth of information regarding both past and present relationships between plants and the traditional societies. Investigations into traditional use and management of local flora have demonstrated the existence of extensive local knowledge of not only about the physical and chemical properties of many plant species, but also the phenological and ecological features in the case of domesticated species. In addition to its traditional roles in economic botany and exploration of human recognition, ethnobotanical research has been applied to current areas of study such as biodiversity prospecting and vegetation management. It is hoped that, in the future, ethnobotany may play an increasingly important role in sustainable development and biodiversity conservation. In interaction with the traditional areas of science, ethnobotany gives out several interrelated and interdisciplinarygives out several interrelated and interdisciplinary subjects link ethnomedicine, ethnoarchaeology, ethnobryology, ethnoecology, ethnoagriculture, ethnonarcotics, ethnopharmacology, etc[22].

References

1. Raut S., Raut S., Sen S.K., Satpathy S. and Pattnaik D. (2013). An Ethno-medicinal survey of medicinal plants in semiliguda of Koraput District, Odisha, India, *Research Journal of Recent sciences,* 2(8), 20- 30.

2. Ahmad M., Khan M.A and Qureshi R.A., (2003) Ethno-medicinal study of same cultivated plants of chhuch region (district of Attock). *Hamdard medicus* , VI (3), 15- 19 .

3. Sharma M., Sharma .C.L. and Marak P.N. (2014). Indigenous uses of medicinal plants in North Garo Hills, Meghalaya, NE India. *Research Journal of Recent Sciences*, 3, 137 – 146.

4. Awoyemi O.K., Ewa, E.E., Abdulkarim, I.A. and Aduloju A.R. (2012). Ethnobotanical assessment of herbal plants in south-western Nigeria. *Academic research international*, 2, 50-57.

5. Emiru B., Ermias A., Wolde Mekuria and Degitu E. (2011). Management, use and ecology of medicinal plants in the degraded dry lands of Tigray, Northern Ethiopia. *Journal of Medicinal Plants Research,* 5(3), 309-318.

6. Pei S.J. (2001). Ethnobotanical approaches of traditional medicine studies: Some experiences from Asia. *Pharmaceutical Biology*. 39, 74-79

7. Ved D.K and Goraya G.S. (2008). Demand and Supply of Medicinal Plants in India, Bishen Singh, Mahendra Pal Singh, Dehra Dun and FRLHT, Bangalore: India.

8. Cowan M.M. (1999). Plant products as antimicrobial agents. *Clinical microbiology reviews,* 12(4), 564–570.

9. Chopda M.Z. and Mahajan R.T. (2009). Wound Healing Plants of Jalgaon District of Maharashtra State, India *Ethnobotanical Leaflets,* 13, 1-32.

10. Jain A.K. and Patole S.N. (2001). Less known medicinal uses of plants among some tribal and rural communities of Pachmarhi forest (MP). *Ethnobotany*, 13, 96-100

11. Jain S.K.and Goel A.K. (1995). A *manual of Ethnobotany* (2nd edition). Scientific Publishers, Jodhpur (India).

12. Kirtikar K.R. and Basu B.D. (1999). Indian Medicinal Plants (Vol. 1, 2, 3 and 4). International Book Distributors, Dehra Dun (India).

13. Saxena S.K. and Tripathi J.P.(1990). Ethnobotany of Bundelkhand. II. Folklore therapy through herbs among in opulent parishioners and aboriginal tribes. *J Econ and Taxon Bot.* 14(2), 263-270.

14. Saxena S.K. and Tripathi J.P. (1989). Ethnobotany of Bundelkhand. I Studies on the medicinal uses of wild trees by the tribal inhabitants of Bundelkhand region. *J Econ and Taxon Bot.* 13(2), 381-389.

15. Bhalla S., Patel J.R. and Bhalla N.P. (1996). Ethnomedicinal observations on some plants of Asteraceae of Bundelkhand region of Madhya Pradesh. *J Econ and Taxon Bot. Additional* Series (No. 12), 175-178.

16. Khanna K.K., Shukla G. and Mudgal V. (1996). New traditional medicinal uses of plants from Jalaun district, Uttar Pradesh*. J Econ and Taxon Bot.* 12,108-111.

17. Dubey G., Shahu P. and Sahu R. (2001). Role of plants in different religious ceremonies common to Bundelkhand region of Madhya Pradesh*. J Med and Arom Pl Sci.,* 23(1A), 542-545.

18. Nigam G. and Kumar V.(2005). Some ethno-medicinal plants of Jhansi District, *Flora and Fauna,* 11(1), 91-93.

19. Thakur Y., Bajpai S.P. and Pathak K.(2008). *Phytochemicals: A therapeutant for critical disease management.* In: Khanna DR, Chopra AK, Prasad G, Malik DS, Bhutiani R, editors. Ethnomedicobotanical surveys of Bundelkhand area of Sagar region of Madhya Pradesh. Daya Publishing House, New Delhi (India), 261-263.

20. Verma R.K., Kumar V. and Agarwal R.K. (2008). Ethno-medicinal value of some plant species used by Sahariya tribe of Lalitpur District, Bundelkhand region. Ann For. 16(1), 99-111.

21. Verma R.K., Kumar V. and Gupta S.R. (2008). Some ethno-medicinal plants used for various skin ailments in villages of Jhansi, India*. Int. J. Pl. Sci.* 3(1), 273-276 http://pilibhit.nic.in.

22. Choudhary K., Singh M. and Pillai U. (2008). Ethnobotanical Survey of Rajasthan - An Update. *American-Eurasian Journal of Botany*, 1(2), 38-45

23. Kanjilal P.C.(1982). *A Forest Flora for Philibhit, Oudh, Gorakhpur and Bundelkhand*. Narendra Publishing House, Delhi (India), 427.

24. Troup R.S.(1921). *The Silviculture of Indian trees* (Vol I and II). Oxford: Clarendon Press